Media Service User Guide

Version 3.0

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Contents

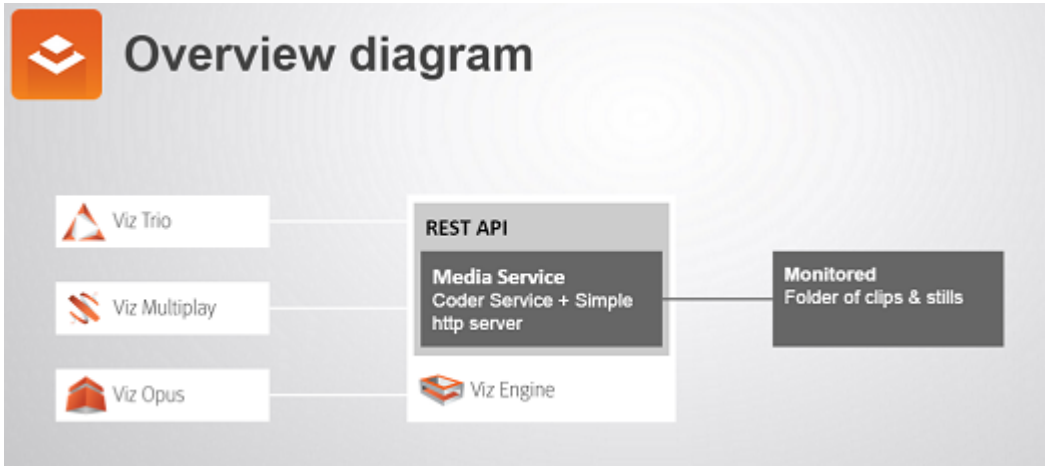
1 Introduction

This is the User Guide for Media Service.

Media Service is a Windows service that generates low-bandwidth preview locally for video clips and images stored on the Clip Folder of the Viz Engine and serves it in an atom feed with the *OpenSearch* standard.

Media Service enables basic search and light-weight preview of clips on the Viz Engine in Vizrt's client products such as:

- Viz Multiplay
- Viz Story
- Viz Trio
- Viz Pilot
- Viz Opus
- and more



Features:

- Monitor single folder.
- Asset search provider, serve out as Atom Collection, including OpenSearch.
- Provides REST based APIs.
- Run as a Windows service on the Viz Engine.

1.1 Related Documents

- Viz Artist User Guide: Contains information on how to create graphics scenes in Viz Artist.
- Viz Engine Administrator Guide: Contains information on how to install the Viz Engine software and supported hardware.
- Viz Trio User Guide: How to install, configure and use the Viz Trio client, and configure the output channels.
- Viz Pilot User Guide: How to install, configure and use Viz Pilot.
- Viz Multichannel User Guide: How to install, configure and use Viz Multichannel.
- OpenSearch documentation.

1.2 Feedback And Suggestions

We welcome your feedback and suggestions regarding Vizrt products and this documentation.

To give feedback and/or suggestions, please contact your local Vizrt customer support team at http://www.vizrt.com.

2 Installation And Configuration

Media Service is shipped as a single installer:

`Media_Service_and_Coder-x86-<version>.exe`

where <version> are numbers indicating version, release and build-number.

IMPORTANT! Always read the Release Notes for any last-minute information.

2.1 Requirements

Media Service is compatible with modern Windows standards and should run on Microsoft Windows version 7 and above. It has been tested on Microsoft Windows versions 7, 8, 8.1 and 10. Media Service is designed to work with Viz Engine but does not require it to run.

The Media Service server requires:

- Microsoft .Net client libraries, version 4.6.1 or above.
- If running on Windows 7, the Coder component (used by Media Service) requires SP1 or higher. It is possible, though not normally done, to run the Coder component on a different machine than the server running Media Service. It is only Coder that requires Windows 7 SP1.
- TCP/IP network connectivity to clients. The standard port is **21099** and this port must be open if using a firewall.

2.1.1 Virtualization

Media Service supports running in a virtual machine using a hypervisor that supports the operating systems listed above. It has been tested using Hyper-V, VMWare and VirtualBox. The following conditions also apply:

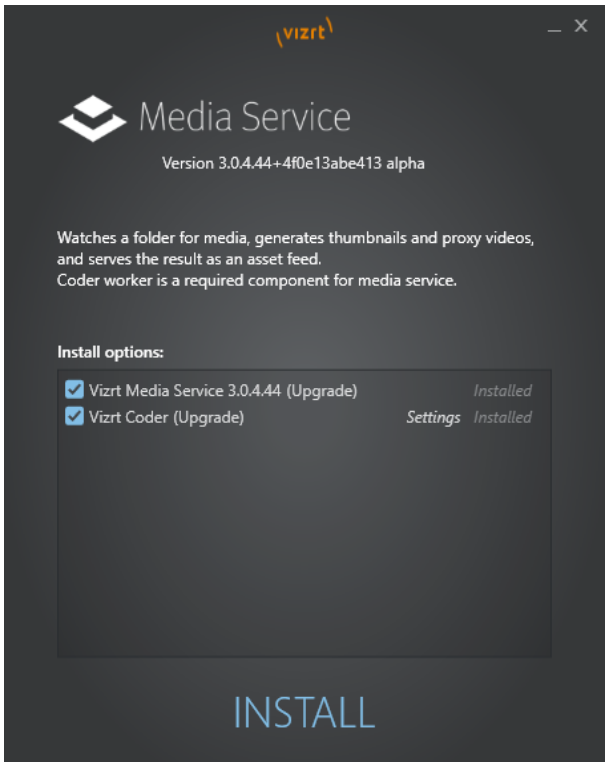
- For playout support, the Viz Engine clip folder must be mounted in the virtual machine, either using the hypervisor's functionality, or as a network share. The path to this folder in the virtual machine does not need to match the path on the Viz Engine host.
- If Coder is installed in the same virtual machine, then either virtual NVidia hardware needs to be attached to the virtual machine for use with NVEnc, or the libx264 encoder needs to be used.
- If Coder is installed on a different machine (virtual or not), the usual limitations apply, see the Coder for Media Service section in the *Coder Administration Guide*.

This section contains information on the following topics:

2.2 Installing Media Service

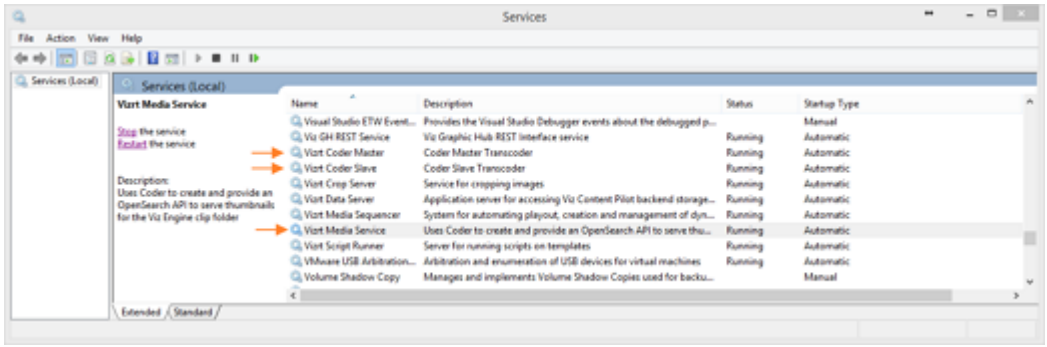
Media Service can be pre-installed with the Viz Engine installation - in which case it does not require any further configuration. If you need to install it yourself or upgrade an existing installation follow these steps to install and configure Media Service:

1. Locate and download Media Service from download.vizrt.com using your customer credentials and password. The installer is named `Media_Service_and_Coder-x86-<VERSION>.exe`
2. If you have a previous installation, un-install the existing Media Service using the standard Windows installation utility before installing a new version. You can install Media Service without un-installing an existing Media Service, but that could mean that you need to restart Windows so it's probably easier to first un-install and then install a new copy. Upgrading or (installing over) pre-release software is **not** supported. See here for details.
3. Double-click the installer package and follow the instructions. All Components should be selected for installation as is the default settings in the installer. Note: It is possible to install one or all of the three components; *Media Service*, *Coder Master* and *Coder Slave*. This should only be used in support situations and in standard installations all three should be installed together. Media Service requires the other components to function properly and has a dependency on the included versions.



- The installer will install three Windows services: *Media Service*, *Coder Master* and *Coder Slave*. Both Coder services are used as by the main service **Media Service** and require no configuration.

- If the installer detects that Windows firewall is active it will open the required network port. If you are using another firewall (note: using a firewall on a Viz Engine is not recommended) you must make sure the network port is open for traffic.
- The Media Service will be started by the installer and set to autostart upon PC restart. If required you can change this behavior using the standard Windows Service configuration tool. (*Windows button > services.msc*)

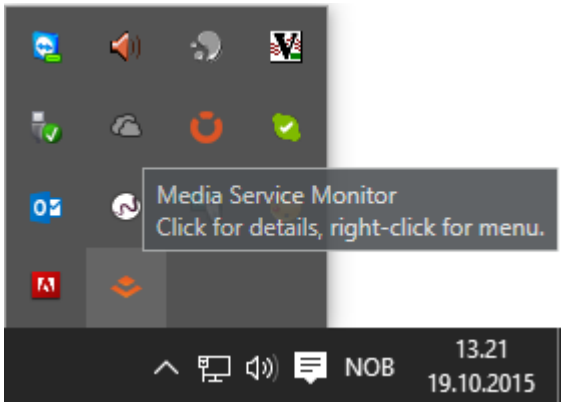


- Assuming the Viz Engine host follows the convention of having clips and images in the **D:** drive no further configuration is required.

> ⚠ **Note:** Previously the standard drive for the Viz Engine clip directory was **V:** If you are using another directory for clips, you must configure the correct directory in the configuration settings dialog.

When Media Service is running a tray icon will be shown in the Windows taskbar as shown in the screenshot below.

- Click the icon for status check (running status).
- Right-click for menu options.



2.3 Configure Media Service

Media Service requires no user configuration to be functional, only if default behavior needs to be changed. You can configure Media Service either by editing a configuration file directly or by using the Configuration tool. It is recommended to use the Configuration tool whenever possible.

Note: Media Service needs to be restarted if the configuration is changed.

This section contains information on the following topics:

2.3.1 Using the Media Service Configuration tool

This section covers the following

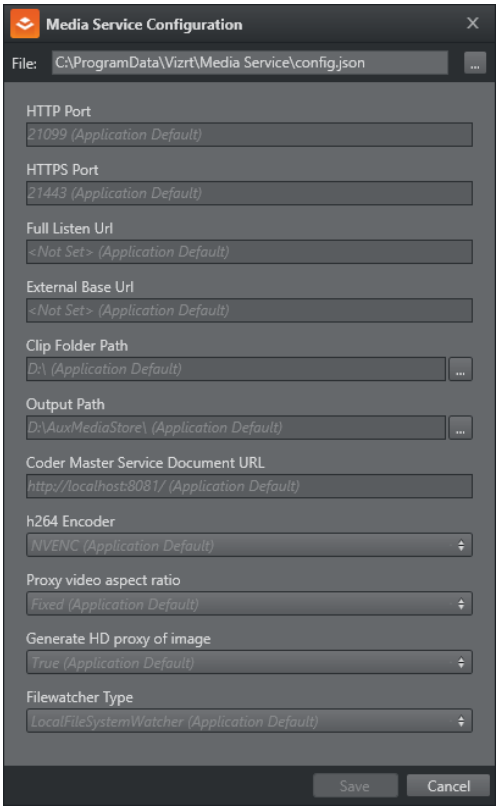
Open the Media Service configuration tool

- Right-click the Media Service tray icon.
- Click Configure Media Service to open the configuration panel.

Tip: Press the Windows logo key and type 'Media Service Configuration'. Press **Enter** to select it from the search results.

Configuration fields explained

Edit the values as required. Make sure to hover the mouse over the options for valuable tool-tips. Note that when you have on of the options selected you can easily revert to default values or copy the value to the Clipboard by clicking the appropriate icon.



HTTP Port: the network port used. Normally no need to change, but if changed then both the server and all clients must agree on the port used.

HTTPS Port: the network port used for HTTPS communication. Normally no need to change, but if changed then both the server and all clients must agree on the port used.

Full Listen Url: URL to listen to for requests - gives you full control over which network interface to listen to. This will override the **HTTP Port** and **HTTPS Port** setting if set. If using **External Base Url**, it is up to you to use the same base path or not. Use "*" to indicate that the server should listen for requests on any IP address or hostname using the specified port and protocol (for example, http://*:21099)

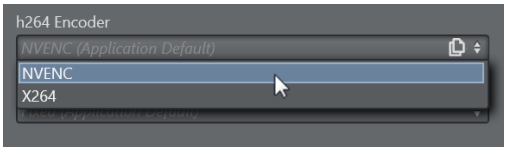
External Base Url: This setting controls how URLs in web API responses are created.

Clip Folder Path: Where the clips (the media files served) are located. A single directory. If there are sub-folders to this directory then the sub-folders will not be searched/served. This should be set to the same path as the Viz Engine Clip root for playout support.

Output Path: A directory to hold transcoded files. Normally not required to change this.

Coder Master Service Document URL: The network address (URL) for the Coder transcoding service. Normally not required to change this.

h264 Encoder: Select software or hardware (application default) encoding for proxy videos. Select X264 for software encoding and NVENC for hardware encoding.



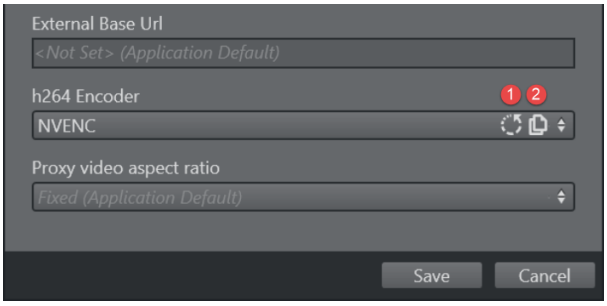
Proxy video aspect ratio: Select a fixed (application default) 16:9 aspect ratio or preserve the original ratio.

Generate HD proxy of image: Enable higher-quality proxy in PNG format from images, also supporting transparency, at the cost of higher disk usage.

Filewatcher Type: Watch a local (**LocalFileSystemWatcher**) or remote clip folder (**RemoteFileSystemWatcher**). 'Local' monitors a folder on the same machine Media Service is installed on, while 'Remote' monitors a folder on a network store machine.

Functionality

Some fields have **Reset to application default** and **copy to clipboard** icons. They appear when hovering the mouse pointer on the right side of the drop-down list boxes, as shown here and defined below:



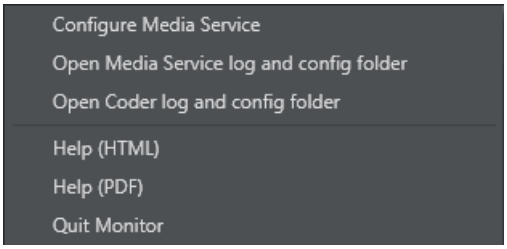
1. **Reset to application default**: Appears when the non-default option is selected from the drop-down list. Click to reset to default.
2. **Copy to clipboard**: Copy a value in the field to the clipboard.

See Also

- To configure X264 encoding

2.3.2 To edit the Media Service Configuration file

To change the default values open up the Media Service configuration folder (normally `_%PROGRAMDATA%\Vizrt\Media Service_`) either by directly navigating to it in Windows Explorer or selecting **Open Media Service log and config folder** from the System Tray icon menu. To access the menu right-click on the Media Service tray icon:



Open the folder by selecting **Open Media Service log and config folder**. In this folder there is a file

named `config.sample.json` which provides an example of all the settings which can be configured. The example file contains comments with instructions for changing values. To create a new configuration:

1. Copy the file `config.sample.json` to a new file `config.json`.
2. Edit the file `config.json` as required and save the file.
3. Restart the Media Service process. Depending on your version of Windows the procedure for this can be slightly different. A common way to do this is:

- Press the Windows button and in the search-panel write, *Services to start the Windows Services component*.
- When Services are launched, select the name column and start writing *Vizrt Media Service* to select the correct process.
- Click the **Restart** button to restart the service.
- Alternatively, if you are using Powershell: Start a powershell window and execute the command *Restart-Service MediaService*.

Some of the common values you can change in `config.json` are:

Keyword	Meaning
ListenUrl	URL to listen to for requests - gives you full control over which network interface to listen to. This will override the **Port** and **SecurePort** setting if set. If using **ExternalBaseUrl**, it is up to you to use the same base path or not. Use "*" to indicate that the server should listen for requests on any IP address or hostname using the specified port and protocol (for example, http://*:21099)
Port	The port used to access Media Service using HTTP, defaults to 21099.
SecurePort	The network port used for HTTPS communication. Normally no need to change, but if changed then both the server and all clients must agree on the port used.
ClipFolderPath	The path to monitor for files which need to be transcoded and added to the asset feed. This will normally be the Viz Engine Clip drive or directory: by convention most often _D:_ or _V:_.
OutputPath	Path where generated files will be placed: `OutputPath\meta_` , `_OutputPath\proxy_` and `_OutputPath\thumb` for the metadata, proxy videos and thumbnails respectively.
CoderMasterServiceDocumentUrl	Full URL for the Coder Master's Service Document.

Keyword	Meaning
ExternalBaseUrl	This setting controls how URLs in web API responses are created.
Encoder	Set software (X264) or hardware (NVenc) (application default) encoding for proxy videos.
ProxyAspectRatio	Set a fixed (application default) 16:9 aspect ratio or preserve the original ratio.
LogLevel	Controls the level of detail that will be written to the log files. The possible levels are (listed from most detail to least): Verbose, Debug, Information, Warning, Error and Fatal.
EnableTrace	Enables web framework trace logging, which logs technical details for every request for the service. **WARNING!** Enabling this setting causes the log files to grow rapidly, which will use additional disk space
GenerateHDImageProxy	Enable higher-quality proxy in PNG format from images, also supporting transparency, at the cost of higher disk usage.
FilewatcherType	Watch a local (**LocalFileSystemWatcher**) or remote clip folder (**RemoteFileSystemWatcher**). 'Local' monitors a folder on the same machine Media Service is installed on, while 'Remote' monitors a folder on a network store machine.

Note: Any configurable information not included in the config file will use the default values.

2.3.3 To configure X264 encoding

The Media Service Coder component can encode H.264/MPEG-4 AVC (X264), but as H.264 is a licensed product this capability depends on both hardware and license.

- When using a recent NVIDIA video card (generation Kepler or newer) Coder can use the NVIDIA supplied NVenc encoder that is bundled with the video card.
- If you have purchased a software license, you can use X264 software-only encoding.

As a rule of thumb: X264 is generally expected to give a higher quality result, while NVenc is generally faster. NVenc is the default profile.

See Also

- Using the Media Service Configuration tool
- To edit the Media Service Configuration file

2.3.4 Media File-Types handled by Media Service

Media Service 3.0.0 no longer has any configuration for which file extensions to process. It will analyze every file that is put into the clip folder, and process anything identified as video, audio or image.

Playout of Media Clips on Viz Engine

For playout of clips on the Viz Engine, the clips must be in a format supported by the installed Viz Engine software and hardware. Click here for details.

> **Note:** Media Service can potentially handle more media types than the Viz Engine. This depends on the codecs and hardware in use at the Viz Engine.

2.4 Upgrading

If upgrading from a previous version:

1. Make a backup of `%ProgramData%\Vizrt\Media Service\`
2. Un-install the previous installed version; and then
3. Install the newer version of Media Service.
4. If the release notes indicate that new proxy media types are available, perform Reprocessing Asset Proxy Media (available through Media Service status check)

> **WARNING!** Upgrading or (installing over) pre-release software is **not** supported. Click here for details.

3 Working With Media Service

Media Service functions without user input. Files placed in the Viz Engine clip folder will have the auxiliary files created automatically and the asset entry will become available in the asset feed as soon as the last generated file for that media file is complete.

> ⚠ **Note:** No files related to a given media resource, including the Hires (high resolution) file itself, will be available in the asset feed until all generated files for that input are completed.

This section contains information on the following topics:

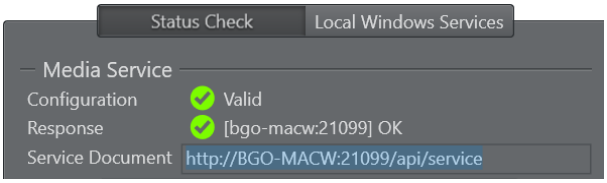
3.1 Service Document

The location of the Service Document is by default:

```
http://MyMediaServiceHostname:21099/api/service
```

The service document URL needs to be copied to client applications such as Viz Trio, Viz Pilot or Viz Multiplay that will use Media Service as a search provider.

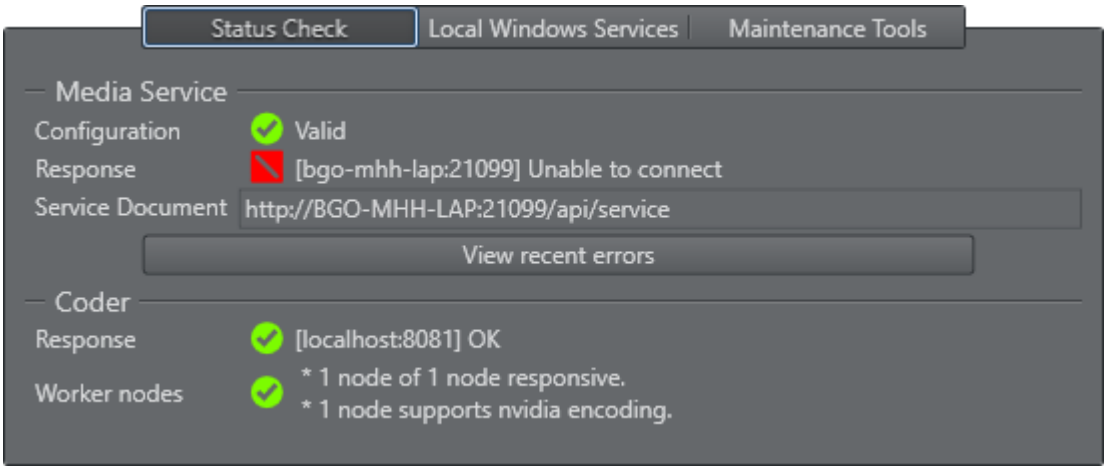
The service document URL can be easily copied from the System Tray icon. Click on the Media Service tray icon. Then select and right-click on the **Service Document** URL entry (Status Check tab must be active). This allows copying the URL to the users clipboard so that it may be pasted into another program, as illustrated in the screenshot below:



3.2 Media Service Status Check

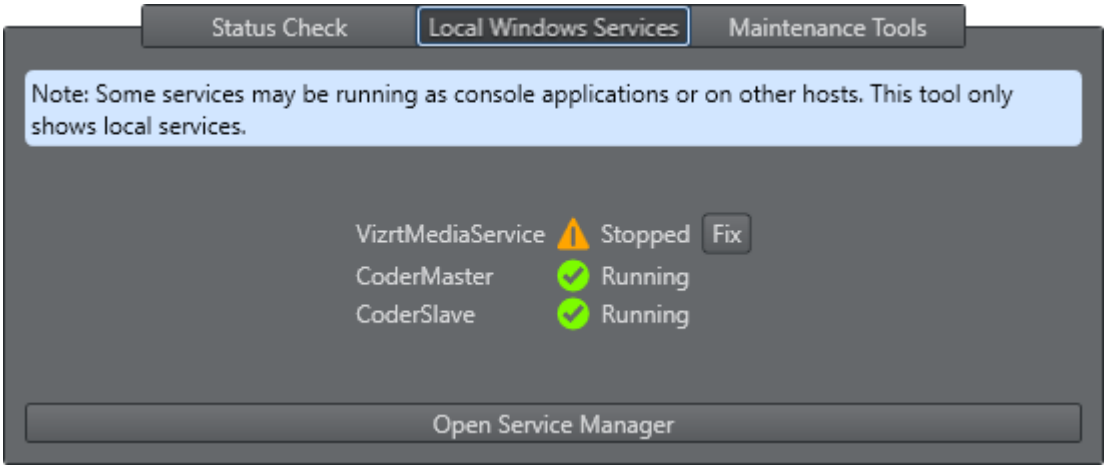
Click the Media Service tray icon to check running status. Some corrective actions will also be presented, if required. There are three tabs: *Status Check, Local Windows Services* and *Maintenance Tools*

3.2.1 Status Check



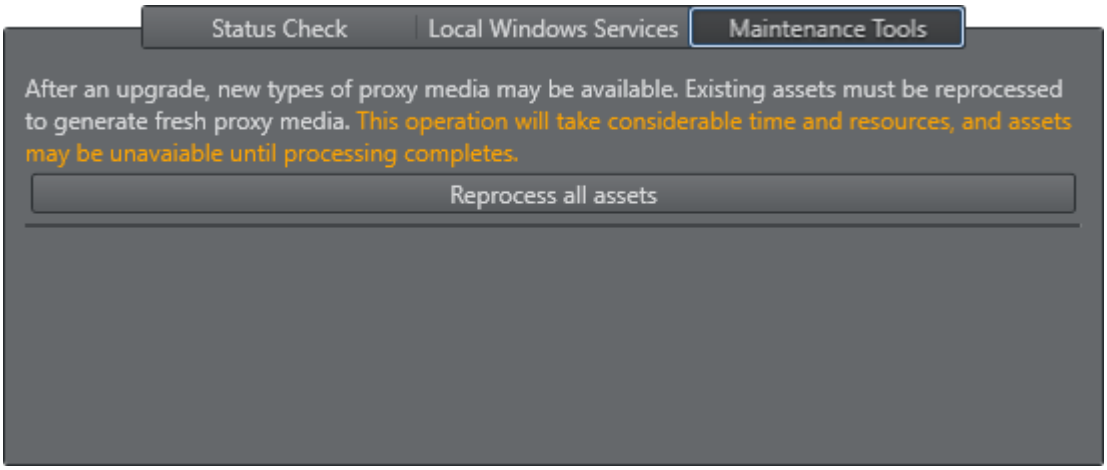
- All status indicators should be marked green. If not, investigate and perform corrective actions.
- Recent errors, if any, can be viewed by clicking “View recent errors”.
  The *Local Windows Services* tab shows the local Windows service processes status:

3.2.2 Local Windows Services



All services should be indicated running. Click *Open Service Manager* to start Windows service manager where services can be configured. Normally it’s not required to do any configuration as the installer will install the required services and configure them to autostart.

3.2.3 Maintenance Tools



This tab contains shortcuts to common maintenance operations. There is currently one operation available that triggers Reprocessing Asset Proxy Media.

3.3 Open Search Queries

The OpenSearch description document is available at **/api/search**, and is listed in the Service Document so clients can automatically discover and use it. It describes paging mechanisms, and two search terms:

- The text search term is '**q**'. This is a simple substring search in the file name of all assets. Media Service will silently ignore any asterisk (*) at the beginning or end of the query.
- The media type search term is '**media**', the only supported types is 'image' and 'video'. An example query:

```
http://localhost:21099/api/asset/?q=seachTerm&media=image&num=20
```

3.4 Status And Logs

The log file, *MediaService.log*, can be accessed in the same location as the Media Service configuration files (normally _C:\ProgramData\Vizrt\Media Service_) which is accessible through the System Tray icon menu. The log file(s) will rotate when they grow big, retaining the last 9 log files.

The System Tray Icon will visually indicate the status or diagnostics of the running services.

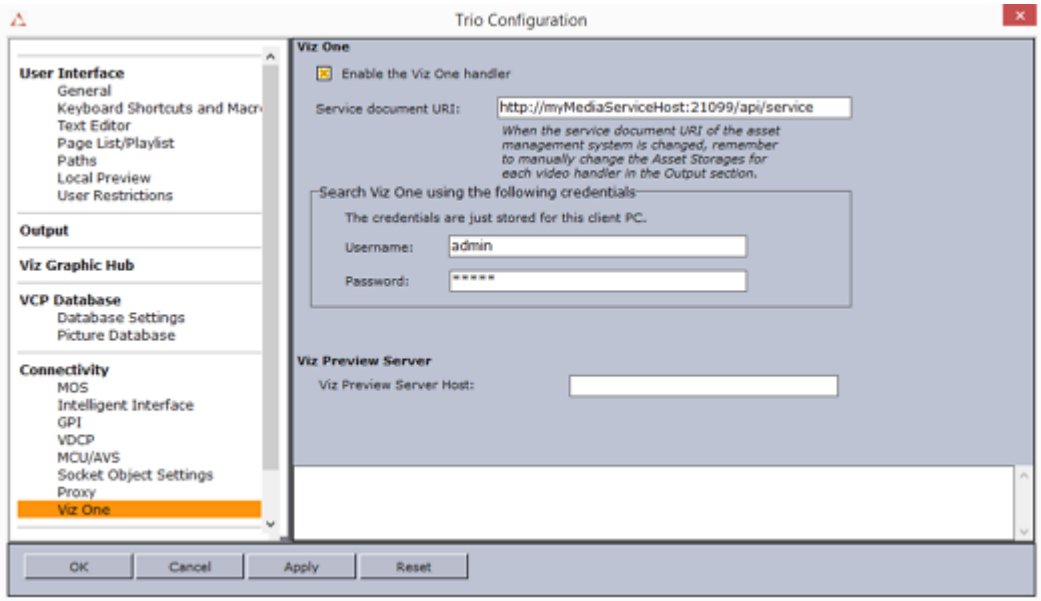
- The top part of the System Tray Icon represents the state of the Media Service service. Orange means it is running normally, gray means needs attention.
- The lower part indicates the state of Coder and it's helper-processes Coder Master and Coder Slave. Orange means running, gray means needs attention as explained in the table below.

Icon status	Meaning
	All services running. This is the expected and normal status. If any parts of the icon is gray corrective action is recommended.
	No response or error from Media Service.
	No response or error from Coder Master.
	No responsive Coder Slaves reported from Coder Master.
	No response or error from Coder Master. No responsive Coder Slaves.

If there is an error in Media Service, click the Tray Icon and consult the resulting pop-up window for more details about status. Click here for more information.

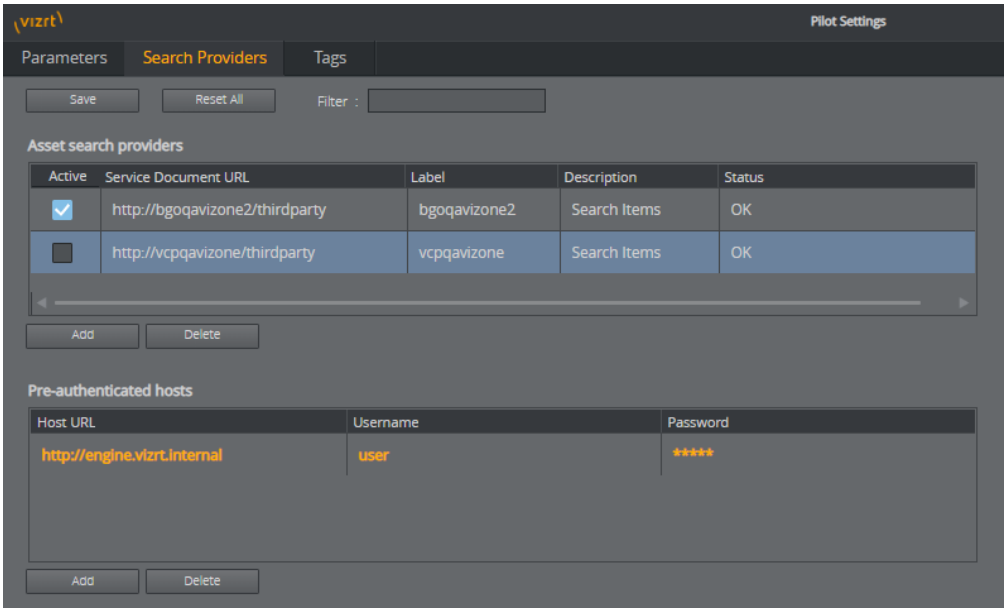
3.5 Using Media Service With Viz Trio

In Trio open *File > Configuration*, select *Viz One*, make sure *Enable Viz One* Handler is checked, and paste the Service Document url into the text field:



3.6 Using Media Service With Viz Multiplay And Viz Pilot

Open Pilot Data Server settings (typically http://localhost:8177/), go to **Settings**, then **Search Providers**, and add the Service Document URL under **Asset search providers**.



3.7 Using Media Service With Other Vizrt Applications

Using Media Service with other Vizrt client programs follows the same pattern that is illustrated in the previous sections:

1. Get the service URL, typically http://MyHostnameHere:21099/api/service
2. Copy the Media Service URL to the client applications search service provider configuration settings.

3.8 Reprocessing Asset Proxy Media

New versions of Media Service may introduce new types of proxy media that clients can use for previewing. All newly ingested media will automatically include the new proxy types. But in order to provide this content for preexisting assets, they need to be reprocessed.

Reprocessing can also be used if processing previously failed for an asset due to a problem that has since been fixed (such as disk space or service downtime).

> ⚠ **Note:** The API provided in version 2.3 is using temporary link relations, and may change in future versions.

3.8.1 Reprocessing individual assets

Some clients may provide means to trigger asset reprocessing in their search or browse interfaces, which should be documented in their respective user guides. This is the recommended way to perform this operation.

It is possible to trigger reprocessing using any HTTP client. Each asset entry contains a link with relation `http://schema.vizrt.com/2017/MediaService/Temporary/Reprocess` as well as a short exlanation of how to use it.

3.8.2 Reprocessing all assets

The Media Service status monitor can be used to trigger reprocessing of all assets as a bulk operation. See Media Service status check for details.

It is possible to trigger reprocessing using any HTTP client. The service document contains a link inside the Asset collection with relation `http://schema.vizrt.com/2017/MediaService/Temporary/ReprocessAll` as well as a short exlanation of how to use it..

WARNING! Reprocessing all assets will take a considerable amount of time and resources, and should preferably be performed during scheduled maintenance.

3.8.3 Limitations

It is not possible to trigger reprocessing of an asset that is currently being ingested using Channel Recorder. After recording stops, it may be reprocessed as normal.

4 Appendix

This section contains typical troubleshooting questions and answers that may arise while installing, configuring or using the Media Service.

If you do not find answers to your issues, please go to http://www.vizrt.com and contact your local Vizrt representative.

This section contains information on the following topics:

4.1 Troubleshooting Tips

- Make sure that the required services are running. You can view the running services using the standard Windows Services utility. Both *Media Service*, *Coder Master* and *Coder Slave* must be running.
- The easiest way to check the required service processes is to click on the Media Service tray icon. Both *Status Check* and *Local Windows Service* items should be marked with a green checkmark. See Media Service status check.
- Make sure the required *network port* is open and running properly, normally port **21099**. You can check the network ports by opening a command window (Windows Start > cmd.exe) and execute the command “netstat -an”. If you have the “grep” utility installed you can filter the output with “netstat -an | grep 21099”.
- Check that Coder Slave is registered to Coder Master: browse to `http://MyMediaserverHost:8081/static/nodes/index.html`, there should be a green entry in the left column.
- From a browser on the client connect to the Media Service port on the service and check that the service document is served properly and correctly received by the client.
- One way to check the connection is to install the free “curl” utility and send a REST call to the Media Service:
  - Install curl from http://curl.haxx.se/download.html (Note: This is a free opensource utility, not a Vizrt product.)
  - Open a command window and request the service document, like:
  - *curl -X GET* `http://MyMediaServiceHost:21099/api/service`
  - Expected ouput returned: A html-document similar to:

```
<?xml version="1.0" encoding="utf-8"?> <app:service xmlns:a10="http://
www.w3.org/2005/Atom" xmlns:app="http://www.w3.org/2007/app">
<app:workspace>     <app:collection>       <app:categories>
<a10:category term="asset" scheme="http://www.vizrt.com/types" />
<a10:category term="search" scheme="http://www.vizrt.com/types" />
</app:categories>       <a10:link rel="search" type="application/
opensearchdescription+xml" href="http://bgo-bvaw:21099/api/search" />
</app:collection>   </app:workspace> </app:service>
```

- If the Media Service configuration have changed, make sure to restart the service processes for the new config to be active.

4.2 Known Limitations

- If Media Service is not running elevated (i.e. with Windows Admin privileges), it can not write to the event log. This also means the tray icon will not show the “x” on the program icon if errors occur.

4.3 Upgrading Media Service After Using A Pre-Release Version

If you are installing (or upgrading to) Media Service on a host where a pre-release version of the software have been installed; before installing the release version, please make sure to:

- Un-install previous versions completely *before* installing the release version of Media Service.
- Delete the output folder (where thumbnails and proxies are stored) before the new version is installed.
- Delete configuration-files (backed up first, if necessary), both for Media Service and Coder. The easiest way is to delete the folder `C:\ProgramData\vizrt\Media Service`.
- Any assets that were used in clients (typically in playlists) will be invalid and need to be re-added.